

The scalar curvature as a momentum map

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For any given compact symplectic manifold (M, ω) , the space \mathcal{AC}_ω of almost-complex structures which are compatible with ω has a natural Kaehler structure, which is preserved by the group of symplectomorphisms. It has been shown by S. Donaldson that the subgroup of hamiltonian symplectomorphisms admits a momentum map which can be identified with the hermitian scalar curvature. We show that this fact is closely related to a natural interpretation of the Mabuchi energy as a Kaehler potential.